

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P332827-840

Luminaire Tested: **S124DIW-S1020D1340U840-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332827-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DIW-S1020D1340U840-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 1340 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9893.8 lumens
Efficiency: N/A
Efficacy: 141.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: General Diffuse

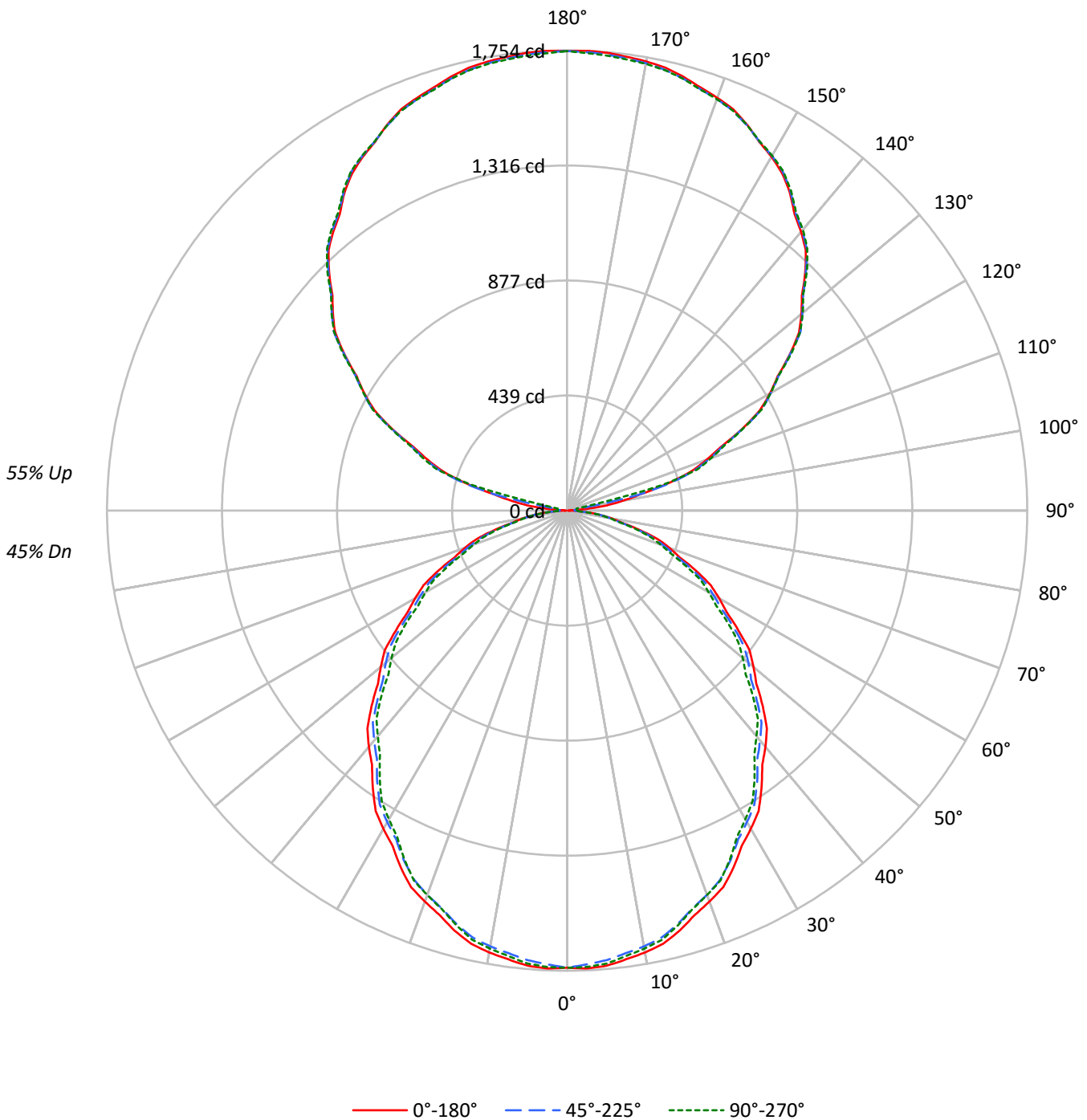
Input Watts (W): 69.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45
1	97	92	88	85	88	85	81	78	71	68	66	58	56	55	46	45	44	38
2	88	81	75	69	80	74	69	64	62	58	55	51	48	45	40	38	37	32
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	36	33	31	27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23
5	67	56	48	42	61	51	44	39	43	38	34	36	32	29	29	26	23	20
6	62	50	42	36	57	46	39	34	39	34	29	32	28	25	26	23	21	18
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14
9	49	37	30	25	45	35	28	23	30	24	21	25	21	18	20	17	15	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	14067	14067	14067
5°	14109	13940	14041
10°	14021	13827	13896
15°	13852	13630	13665
20°	13626	13387	13399
25°	13370	13109	13071
30°	13055	12781	12665
35°	12728	12439	12275
40°	12390	12052	11830
45°	12036	11669	11445
50°	11645	11328	10977
55°	11222	10888	10534
60°	10798	10393	10077
65°	10323	9922	9522
70°	9788	9293	8932
75°	8971	8537	8319
80°	7987	7657	7466
85°	6984	6725	6595



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.1	1.7
10°-20°	462.4	4.7
20°-30°	680.5	6.9
30°-40°	791.1	8.0
40°-50°	791.2	8.0
50°-60°	692.1	7.0
60°-70°	514.0	5.2
70°-80°	292.0	3.0
80°-90°	89.3	0.9
90°-100°	59.9	0.6
100°-110°	381.9	3.9
110°-120°	730.6	7.4
120°-130°	927.4	9.4
130°-140°	992.3	10.0
140°-150°	927.9	9.4
150°-160°	748.3	7.6
160°-170°	482.6	4.9
170°-180°	166.3	1.7
0°-30°	1307.0	13.2
0°-40°	2098.1	21.2
0°-60°	3581.3	36.2
0°-90°	4476.6	45.2
90°-120°	1172.4	11.8
90°-150°	4020.0	40.6
90°-180°	5417.0	54.8
0°-180°	9893.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1742	1742	1742	1742	1742	
5°	1741	1735	1720	1735	1733	165
15°	1657	1651	1631	1638	1635	467
25°	1501	1491	1472	1473	1467	690
35°	1292	1281	1262	1253	1246	807
45°	1054	1044	1022	1007	1002	812
55°	797	792	774	757	748	714
65°	540	533	519	506	498	535
75°	288	281	274	268	267	306
85°	75	75	73	72	71	83
90°	4	18	29	36	39	7
95°	72	30	29	36	38	93
105°	394	402	409	417	373	413
115°	736	740	739	741	741	724
125°	1035	1040	1037	1041	1043	924
135°	1284	1283	1288	1290	1293	989
145°	1480	1484	1484	1485	1488	925
155°	1623	1624	1620	1625	1622	748
165°	1712	1706	1706	1715	1704	484
175°	1751	1744	1745	1755	1741	167
180°	1751	1751	1751	1751	1751	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5
2.5°	1747.0	1746.3	1745.5	1744.7	1744.0	1742.2	1739.5	1736.8	1734.0	1731.3	1733.8
5°	1741.1	1739.9	1738.7	1737.4	1736.2	1733.8	1730.4	1727.0	1723.6	1720.2	1723.6
7.5°	1725.0	1723.6	1722.4	1721.2	1720.0	1717.5	1713.6	1709.9	1706.1	1702.3	1705.1
10°	1710.4	1709.2	1707.9	1706.7	1705.5	1702.8	1698.8	1694.8	1690.7	1686.7	1689.1
12.5°	1691.4	1690.2	1688.9	1687.7	1686.5	1683.6	1679.4	1675.2	1670.8	1666.6	1669.3
15°	1657.4	1656.1	1654.9	1653.7	1652.3	1649.4	1644.8	1640.1	1635.5	1630.8	1632.6
17.5°	1616.3	1614.8	1613.2	1611.6	1610.1	1607.1	1602.7	1598.3	1593.9	1589.5	1590.6
20°	1586.1	1584.6	1583.1	1581.4	1579.9	1576.8	1572.2	1567.5	1562.9	1558.2	1559.1
22.5°	1553.8	1551.7	1549.6	1547.6	1545.6	1542.2	1537.5	1532.9	1528.2	1523.6	1525.3
25°	1501.0	1498.8	1496.6	1494.4	1492.3	1489.0	1484.7	1480.4	1476.0	1471.7	1472.0
27.5°	1440.7	1438.5	1436.1	1433.9	1431.7	1428.6	1424.5	1420.5	1416.4	1412.4	1411.7
30°	1400.5	1398.0	1395.4	1393.0	1390.5	1387.3	1383.2	1379.2	1375.1	1371.1	1369.9
32.5°	1358.0	1355.7	1353.5	1351.3	1349.1	1345.7	1341.5	1337.3	1332.9	1328.7	1327.2
35°	1291.5	1289.4	1287.2	1285.1	1282.8	1279.6	1275.3	1270.9	1266.6	1262.2	1260.0
37.5°	1221.4	1219.4	1217.5	1215.5	1213.5	1210.2	1205.5	1200.8	1196.2	1191.5	1189.2
40°	1175.7	1173.2	1170.6	1168.2	1165.7	1162.2	1157.5	1152.9	1148.2	1143.6	1140.4
42.5°	1126.5	1125.0	1123.5	1122.1	1120.5	1117.2	1112.1	1106.9	1101.8	1096.6	1093.0
45°	1054.2	1052.0	1049.9	1047.6	1045.5	1041.9	1036.9	1032.0	1027.0	1022.1	1018.7
47.5°	978.5	977.0	975.5	974.0	972.5	969.5	964.9	960.3	955.7	951.1	947.3
50°	927.2	925.8	924.6	923.4	922.1	919.4	915.0	910.7	906.4	902.0	897.7
52.5°	876.9	875.4	873.8	872.4	870.9	867.9	863.2	858.7	854.0	849.5	845.7
55°	797.3	796.3	795.4	794.5	793.6	790.9	786.6	782.2	777.9	773.6	769.8
57.5°	721.3	720.2	719.2	718.1	717.1	714.4	710.1	705.9	701.6	697.3	693.8
60°	668.8	667.2	665.7	664.2	662.6	659.8	655.8	651.8	647.7	643.7	640.9
62.5°	617.4	616.1	614.8	613.5	612.2	609.5	605.1	600.9	596.5	592.3	589.8
65°	540.4	538.8	537.2	535.7	534.1	531.8	528.7	525.6	522.5	519.4	516.3
67.5°	462.7	461.3	459.9	458.5	457.0	454.8	451.8	448.9	445.9	442.9	439.9
70°	414.7	412.5	410.3	408.2	406.0	403.6	401.2	398.7	396.3	393.7	391.2
72.5°	363.3	361.1	359.0	356.8	354.7	352.5	350.5	348.6	346.6	344.6	342.6
75°	287.6	286.1	284.5	283.0	281.4	279.8	278.3	276.8	275.2	273.7	272.5
77.5°	215.3	214.6	213.9	213.3	212.6	211.6	210.2	208.8	207.4	206.1	205.7
80°	171.8	170.8	169.9	169.0	168.0	167.2	166.6	166.0	165.4	164.7	164.1
82.5°	129.3	128.9	128.5	127.9	127.5	127.2	127.1	127.0	126.9	126.7	126.4
85°	75.4	75.4	75.4	75.4	75.4	75.1	74.4	73.8	73.2	72.6	72.6
87.5°	29.8	30.2	30.6	31.0	31.4	31.7	31.9	32.1	32.3	32.6	32.9
90°	3.9	7.2	10.3	13.5	16.8	19.5	21.8	24.1	26.5	28.8	30.6
92.5°	16.5	16.7	16.9	17.1	17.2	18.5	20.8	23.1	25.4	27.8	29.5
95°	72.0	62.1	52.2	42.3	32.4	27.7	28.0	28.3	28.5	28.8	30.6
97.5°	153.0	159.2	165.3	171.5	177.6	164.5	132.0	99.6	67.1	34.5	34.7
100°	214.8	220.0	225.3	230.6	235.8	218.3	178.1	137.9	97.8	57.7	52.7
102.5°	284.0	287.8	291.6	295.5	299.3	298.6	293.4	288.2	283.0	277.7	224.3
105°	394.3	396.0	397.8	399.5	401.2	402.8	404.3	405.8	407.2	408.7	411.3
107.5°	496.7	497.6	498.5	499.3	500.2	501.6	503.6	505.5	507.6	509.6	510.8
110°	565.8	566.7	567.6	568.5	569.4	570.7	572.4	574.1	575.9	577.6	578.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	632.9	634.5	636.1	637.6	639.2	640.4	641.3	642.1	642.9	643.7	643.6
115°	736.1	737.0	737.9	738.7	739.6	739.9	739.6	739.3	739.0	738.7	739.3
117.5°	829.1	830.3	831.4	832.6	833.7	834.7	835.4	836.0	836.6	837.3	837.2
120°	892.0	893.1	894.3	895.5	896.7	897.1	896.9	896.6	896.3	896.0	896.6
122.5°	950.7	951.4	952.1	952.8	953.5	954.0	954.4	954.8	955.2	955.6	956.0
125°	1034.8	1035.9	1037.1	1038.2	1039.5	1039.8	1039.2	1038.5	1037.9	1037.4	1038.2
127.5°	1114.4	1114.7	1115.0	1115.3	1115.6	1116.4	1117.7	1119.0	1120.4	1121.8	1121.6
130°	1165.8	1166.1	1166.4	1166.6	1166.9	1167.5	1168.4	1169.2	1170.1	1171.0	1171.3
132.5°	1212.9	1213.5	1214.0	1214.5	1215.0	1215.9	1217.0	1218.0	1219.1	1220.2	1220.5
135°	1283.6	1283.3	1283.0	1282.8	1282.5	1282.9	1284.0	1285.3	1286.5	1287.6	1288.2
137.5°	1346.3	1346.4	1346.5	1346.7	1346.8	1347.5	1348.7	1350.0	1351.3	1352.5	1353.2
140°	1387.2	1387.8	1388.3	1388.9	1389.5	1390.1	1390.6	1391.2	1391.8	1392.4	1393.2
142.5°	1423.8	1424.8	1425.9	1426.9	1428.1	1428.7	1429.1	1429.4	1429.8	1430.1	1430.8
145°	1480.2	1481.0	1481.9	1482.8	1483.6	1484.1	1484.1	1484.1	1484.1	1484.1	1484.4
147.5°	1524.9	1526.5	1528.2	1529.8	1531.5	1532.2	1531.9	1531.6	1531.3	1531.0	1531.2
150°	1557.4	1558.6	1559.7	1560.9	1562.1	1562.5	1562.3	1562.0	1561.7	1561.4	1561.4
152.5°	1584.7	1585.6	1586.5	1587.4	1588.4	1588.6	1588.1	1587.5	1587.0	1586.5	1587.0
155°	1623.0	1623.2	1623.5	1623.8	1624.1	1623.8	1623.0	1622.0	1621.1	1620.3	1621.4
157.5°	1655.2	1655.0	1654.8	1654.6	1654.5	1653.9	1652.8	1651.8	1650.9	1649.9	1651.4
160°	1674.0	1673.1	1672.2	1671.3	1670.5	1669.9	1669.6	1669.3	1669.0	1668.8	1670.5
162.5°	1690.7	1689.6	1688.6	1687.5	1686.4	1685.7	1685.4	1685.1	1684.8	1684.5	1686.2
165°	1712.0	1710.5	1709.1	1707.6	1706.2	1705.5	1705.5	1705.5	1705.5	1705.5	1707.8
167.5°	1728.8	1727.3	1725.8	1724.2	1722.7	1721.8	1721.7	1721.5	1721.3	1721.1	1723.7
170°	1738.2	1736.5	1734.6	1732.9	1731.2	1730.5	1730.7	1731.0	1731.3	1731.6	1733.9
172.5°	1744.4	1742.7	1741.0	1739.2	1737.5	1736.8	1737.1	1737.4	1737.6	1737.9	1740.2
175°	1751.3	1749.5	1747.8	1746.1	1744.2	1743.5	1743.8	1744.1	1744.4	1744.7	1747.4
177.5°	1754.4	1752.8	1751.1	1749.5	1747.9	1747.3	1747.8	1748.3	1748.7	1749.2	1751.0
180°	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5	1742.5
2.5°	1736.3	1738.8	1741.3	1742.4	1742.1	1741.9	1741.6	1741.4
5°	1727.0	1730.4	1733.8	1735.3	1734.6	1733.9	1733.3	1732.7
7.5°	1707.8	1710.5	1713.2	1714.4	1714.0	1713.6	1713.2	1712.9
10°	1691.6	1694.1	1696.6	1697.5	1696.9	1696.3	1695.7	1695.1
12.5°	1672.0	1674.8	1677.5	1678.4	1677.6	1676.7	1675.8	1675.0
15°	1634.6	1636.4	1638.3	1638.7	1637.8	1636.9	1636.0	1635.0
17.5°	1591.9	1593.1	1594.2	1594.5	1593.9	1593.3	1592.7	1592.0
20°	1560.0	1561.0	1562.0	1562.1	1561.5	1560.8	1560.2	1559.6
22.5°	1526.9	1528.6	1530.2	1530.6	1529.4	1528.3	1527.2	1526.1
25°	1472.3	1472.6	1472.9	1472.4	1471.2	1470.0	1468.6	1467.4
27.5°	1411.0	1410.2	1409.5	1408.4	1406.7	1405.2	1403.6	1402.1
30°	1368.7	1367.4	1366.1	1364.7	1363.2	1361.6	1360.1	1358.6
32.5°	1325.6	1324.2	1322.7	1321.2	1319.6	1318.1	1316.6	1314.9
35°	1257.9	1255.7	1253.5	1251.6	1250.1	1248.6	1247.0	1245.5
37.5°	1186.8	1184.5	1182.1	1179.9	1177.9	1175.8	1173.8	1171.7
40°	1137.3	1134.2	1131.1	1128.8	1127.2	1125.7	1124.2	1122.6
42.5°	1089.4	1085.8	1082.2	1079.8	1078.8	1077.7	1076.7	1075.7
45°	1015.2	1011.8	1008.4	1006.2	1005.3	1004.4	1003.4	1002.5
47.5°	943.4	939.6	935.7	932.6	930.3	927.9	925.5	923.2
50°	893.3	889.0	884.6	881.5	879.6	877.8	876.0	874.0
52.5°	841.8	837.9	834.0	831.0	828.6	826.3	823.9	821.5
55°	766.1	762.3	758.6	755.9	754.0	752.1	750.2	748.4
57.5°	690.2	686.7	683.2	680.4	678.6	676.9	675.1	673.3
60°	638.1	635.3	632.5	630.4	628.7	627.2	625.7	624.1
62.5°	587.2	584.6	582.1	580.1	578.6	576.9	575.4	573.9
65°	513.2	510.1	507.0	504.6	503.1	501.6	500.0	498.5
67.5°	437.0	433.9	431.0	429.3	428.8	428.4	428.0	427.6
70°	388.8	386.3	383.8	382.1	381.2	380.2	379.3	378.4
72.5°	340.6	338.6	336.7	335.2	334.3	333.4	332.4	331.4
75°	271.1	269.9	268.7	267.9	267.6	267.3	267.0	266.7
77.5°	205.3	205.0	204.6	204.0	203.2	202.4	201.6	200.8
80°	163.5	162.9	162.3	161.8	161.5	161.2	160.9	160.6
82.5°	126.0	125.6	125.3	124.9	124.6	124.3	124.0	123.7
85°	72.6	72.6	72.6	72.4	72.1	71.8	71.5	71.2
87.5°	33.2	33.6	33.9	34.2	34.3	34.4	34.5	34.6
90°	32.3	34.0	35.9	37.0	37.6	38.2	38.7	39.3
92.5°	31.3	33.0	34.7	35.6	35.9	36.0	36.1	36.2
95°	32.3	34.0	35.9	36.9	37.1	37.4	37.7	38.0
97.5°	34.9	35.1	35.2	35.5	35.9	36.1	36.4	36.7
100°	47.8	42.8	37.9	35.5	35.9	36.1	36.4	36.7
102.5°	171.0	117.5	64.1	37.5	37.6	37.6	37.7	37.8
105°	413.9	416.6	419.2	415.3	404.8	394.3	383.7	373.3
107.5°	512.1	513.4	514.6	515.8	516.9	518.1	519.2	520.3
110°	578.9	579.4	580.0	580.7	581.6	582.5	583.3	584.2



TEST NUMBER: P332827-840

CATALOG NUMBER: S124DIW-S1020D1340U840-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	643.4	643.3	643.2	643.7	644.8	645.9	647.0	648.1
115°	739.9	740.5	741.0	741.3	741.3	741.3	741.3	741.3
117.5°	837.0	836.9	836.8	836.7	836.6	836.5	836.4	836.2
120°	897.1	897.7	898.3	898.3	897.7	897.1	896.6	896.0
122.5°	956.3	956.7	957.0	956.9	956.3	955.7	955.2	954.6
125°	1039.2	1040.1	1040.9	1041.5	1041.8	1042.1	1042.4	1042.7
127.5°	1121.5	1121.3	1121.1	1120.8	1120.6	1120.3	1120.1	1119.9
130°	1171.5	1171.8	1172.2	1172.4	1172.4	1172.4	1172.4	1172.4
132.5°	1220.8	1221.1	1221.4	1221.4	1221.2	1221.0	1220.7	1220.5
135°	1288.8	1289.3	1289.9	1290.5	1291.1	1291.6	1292.2	1292.8
137.5°	1353.8	1354.4	1355.1	1355.3	1355.1	1355.0	1354.8	1354.6
140°	1394.1	1395.0	1395.8	1396.4	1396.7	1397.0	1397.4	1397.7
142.5°	1431.4	1432.0	1432.7	1433.0	1433.1	1433.1	1433.2	1433.2
145°	1484.6	1484.9	1485.2	1485.7	1486.2	1486.8	1487.4	1488.0
147.5°	1531.5	1531.7	1531.9	1532.2	1532.5	1532.8	1533.0	1533.3
150°	1561.4	1561.4	1561.4	1561.5	1561.8	1562.1	1562.4	1562.7
152.5°	1587.4	1587.9	1588.3	1588.5	1588.3	1588.1	1588.0	1587.8
155°	1622.7	1623.8	1625.0	1625.1	1624.3	1623.4	1622.4	1621.6
157.5°	1652.9	1654.5	1656.0	1656.0	1654.5	1652.9	1651.4	1649.9
160°	1672.2	1674.0	1675.8	1675.8	1674.0	1672.2	1670.5	1668.8
162.5°	1688.0	1689.7	1691.4	1691.3	1689.4	1687.4	1685.4	1683.4
165°	1710.1	1712.4	1714.8	1714.5	1712.0	1709.4	1706.8	1704.1
167.5°	1726.3	1728.8	1731.4	1731.2	1728.3	1725.4	1722.5	1719.6
170°	1736.3	1738.6	1740.9	1740.6	1737.8	1734.8	1731.9	1729.0
172.5°	1742.5	1744.9	1747.3	1746.9	1743.6	1740.5	1737.4	1734.2
175°	1750.0	1752.6	1755.2	1754.7	1751.3	1747.8	1744.2	1740.8
177.5°	1752.9	1754.7	1756.7	1756.2	1753.3	1750.6	1747.8	1744.9
180°	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3

(END OF REPORT)